

T&R MANUAL, MATC

APPENDIX A

ATCO KNOWLEDGE SYLLABUS

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APPENDIX A

ATCO KNOWLEDGE SYLLABUS

1. ATC Qualifications

a. Tower Ground Control (TGC) qualification. An ATCO is TGC qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

b. Radar Final Controller (RFC) qualification. An ATCO is RFC qualified upon completion of required events in the Combat Ready phase of this syllabus. An entry shall be made in the individual MACCS performance record stating the qualification.

c. Marine ATC Mobile Team Leader (MMT) designation. An ATCO is designated as an MMT member upon completion of the required events in the Combat Ready phase of this syllabus. An ATCO is certified as an MMT Leader upon completion of Combat Qualified phase. A letter shall be inserted in the individual MACCS performance record stating the designation.

d. Facility Watch Officer/Watch Commander (FWO/WC) designation. An ATCO is designated as an FWO/WC by the ATCFO upon completion of required events in the Combat Qualified phase of the tower/radar syllabus. A letter shall be inserted in the individual MACCS performance record stating the qualification.

2. Knowledge Syllabus

a. The ATC MOS is knowledge intensive. The knowledge in this Appendix is required of all ATCOs to obtain not only position qualification but Combat Qualification as well. There is common knowledge applicable to both the tower and radar branches of a facility which has been put in a specific section in the Appendix entitled "Common Knowledge." In addition, each branch has specific knowledge required for qualification.

b. All knowledge in this Appendix is a prerequisite for an event throughout this syllabus. Knowledge associated with a control position will be taught and tested during the student controller's training. Knowledge in this syllabus shall be tested through examination with a minimum passing score of 80 percent.

c. The following abbreviations apply: Common knowledge (KFAM), Tower Ground Control knowledge (KTGC), Radar Final Control knowledge (KRFC).

3. Common Knowledge

KFAM-200

Topic. Memorize the airfield layout.

Requirement. Draw/label from memory an airfield diagram to include the following:

- Runways.
  - Numbering/markings.
  - Length and width.
  - Aircraft weight bearing capacity.
  - Crash Fire Rescue standby positions.
  - Windssocks (type/capacity).
  - OLS positions.
- Helicopter landing areas/spots name, designation and restrictions.
- Taxiways.
  - Length and width.
  - Directional usage.
  - Aircraft weight bearing capacity.
  - Designation (name/number).
  - Special use areas (hazardous cargo, hot brakes, ordnance load/offload, arm/dearm, etc.).
  - Special routes (VIP, ordnance carrying, etc.).
  - Restrictions.
- Fuel Pits.
  - Number of fueling points.
  - Directional usage.
  - Types of fuel available.
- Aircraft wash rack restrictions and directional usage.
- Tenant aircraft parking ramps.
  - Squadron assigned.
  - Type of aircraft.
  - Tactical call sign/MODEX.
  - Hangar assigned.
  - Taxi routes.
- Transient parking ramps.
  - Restrictions.
  - VIP spots.
  - Taxi routes.
- Crash Fire Rescue location and types of vehicles.
- Hangars.
  - Building number.
  - Unit assigned.
  - Special usage (if applicable).
- Vehicular traffic.
  - Restrictions.
  - Routes.
  - Clearances.
  - Control devices (road lights, traffic arms, etc.).

- Visual aids.
  - Runway lights.
  - Approach lights.
  - Taxiway lights.
  - Airfield beacon.
  - Obstruction lights.
  - Optical landing systems.
- Navigation aids.
  - Type and channel/frequency.
  - Location and monitoring capability.
  - Compass rose.
- Obstructions type, height, and location on the airfield.
- ATC radar types and location.

Reference. Local publications and Flight Information Publications.

KFAM-201

Topic. General ATC knowledge.

Reference

FAA 7110.65

Ch1	Sec1	General.
Ch1	Sec2	Terms Of Reference.
Ch2	Sec1	General.
Ch2	Sec2	Forwarding Amended and UTM Data.
Ch2	Sec4	Radio And Interphone Communication.
Ch2	Sec8	RVR - Terminal (ARR,DPT,APC).
Ch2	Sec10	Team Position Responsibilities (Crew).
Ch3	Sec1	Establishing Two-Way Communications.
Ch9	Sec1	General (Special Flights).
Ch10	Sec1	General (Emergencies).

Glossary Terms

Additional Service.  
 Advisory Frequencies.  
 Aerial Refueling.  
 Affirmative.  
 Roger.  
 Wilco.  
 Aircraft Classes.  
 AirMet.  
 Approach Gate.  
 Final Approach Fix.  
 Final Approach Course.  
 Decision Height.  
 Overhead Approach.  
 Pilot's Discretion.  
 PIREP.  
 Preferential Routing.

Procedure Turn.  
Segments Of Instrument Approach.  
Short Range Clearances.  
Simulated Flameout.  
Published Missed Approach.  
Tower En Route Service.

Local publications.

KFAM-202

Topic. Local area/airfield specific knowledge.

Reference

FAA 7110.65

Ch3 Sec3 Arresting System Operation.

Ch3 Sec5 Selection.

Local publications Airfield Weather Minimums.  
Type Aircraft Assigned Each Local Squadron.  
Modex/Tactical Call Sign Of Each Local Squadron.  
Traffic Patterns and NAVAID Procedures.  
Alternate/Divert Airfield.  
Adjacent Airfields.  
Airport Surface Area Description (FAA 7400.8).  
Facility Frequencies.

KFAM-203

Topic. Emergency/safety knowledge.

Reference

FAA 7110.65

Ch2 Sec1 In-Flight Equipment Malfunctions.

Ch2 Sec1 Minimum Fuel.

Ch4 Sec7 Below Minima Report By Pilot.

Ch5 Sec2 Emergency Code Assignment.

Ch10 Sec1 General.

Ch10 Sec2 Emergency Assistance.

Ch10 Sec3 Overdue Aircraft.

Ch10 Sec4 Control Actions.

NAVAIR 00-80T-114

Ch3 Facility Operation.

Ch3 Security of Facilities.

Ch3 Aircraft Accidents and Incidents.

Ch3 Operational Errors/Deviations.

Local publications.

KFAM-204

Topic. Weather knowledge.

Reference

FAA 7110.65  
     Ch2 Sec6 Weather Information.  
     Ch2 Sec7 Altimeter Settings.  
     Ch2 Sec8 Runway Vsby Reporting-Terminal.  
     Ch2 Sec9 ATIS Procedures.  
     Ch3 Sec1 Low Level Windshear Advisories.  
 FAA 7210.3L  
     Ch12 Sec3 Operations.  
     Ch16 Aviation Meteorological Services.

KFAM-205

Topic. Tower equipment.

Reference

FAA 7110.65  
     Ch2 Sec1 NAVAID Malfunction.  
     Ch2 Sec9 ATIS.  
     Ch3 Sec1 Tower Radar Displays.  
     Ch3 Sec2 Light Gun.  
     Ch3 Sec2 Receiver Only Acknowledgment.  
     Ch3 Sec4 All Applicable Airport Lighting.  
     Ch3 Sec6 ASDE (If Applicable).  
 FAA 7210.3  
     Ch3 General.  
 NAVAIR 00-80T-114  
     Ch2 Airport Facilities.  
     Ch6 Equipment (Tower).  
         Tower Visibility Chart.  
 MCO 3501.9 MACCS MCCRES.  
 Local publications.

KFAM-206

Topic. Airfield lighting.

Reference

FAA 7110.65  
     Ch3 Sec4 Emergency Lighting.  
     Ch3 Sec4 Runway End Identifier Lights.  
     Ch3 Sec4 VASI Lights.  
     Ch3 Sec4 Approach Lights.  
     Ch3 Sec4 ALS Intensity.  
     Ch3 Sec4 Sequenced Flashing Lights.  
     Ch3 Sec4 MALSR.  
     Ch3 Sec4 ALSF-2.  
     Ch3 Sec4 Runway Edge Lights.  
     Ch3 Sec4 High Intensity Runway, Centerline Light.  
     Ch3 Sec4 HIRL Associated With MALSR.  
     Ch3 Sec4 HIRL Changes.  
     Ch3 Sec4 Medium Intensity Runway Lights.  
     Ch3 Sec4 Simultaneous Approach/Runway Edge.

Ch3 Sec4 High Speed Turnoff Light.  
 Ch3 Sec4 Taxiway Lights.  
 Ch3 Sec4 Obstruction Lights.  
 Ch3 Sec4 Rotating Beacon.  
 FAA 7210.3  
 Ch12 Sec6 Airport Lighting.  
 NAVAIR 51-50AAA-2 All Airfield Markings.  
 Local publications.

KFAM-207

Topic. Strip marking.

Reference

FAA 7110.65  
 Ch2 Sec2 Flight Plans and Control Information.  
 Ch2 Sec3 Flight Progress Strips.  
 Local publications.

KFAM-208

Topic. Radar equipment.

Reference

FAA 7110.65  
 Ch5 Sec1 Presentation and Equip/Performance.  
 Ch5 Sec1 Alignment Check.  
 Ch5 Sec1 Radar Use.  
 Ch5 Sec1 Beacon Range Accuracy.  
 Ch5 Sec1 Electronic Cursor.  
 Ch5 Sec2 Standby/Low Sensitivity Operation.  
 Ch5 Sec2 Inoperative Interrogator.  
 Ch5 Sec2 In-flight Deviations From Transponder.  
 Ch5 Sec2 Altitude Filters.  
 Ch5 Sec15 Automated Radar Terminal Systems (ARTS) Terminal.  
 Ch5 Sec16 TPX-42 - Terminal.  
 FAA 7210.3L  
 Ch3 Sec1 General.  
 Ch3 Sec7 Radar Use.  
 Ch3 Sec8 Video Maps.  
 NAVAIR 00-80T-114  
 Ch2 Airport Facilities.  
 Ch7 Equipment (Radar).  
 Appendix J Certification, Rating, and Quality Assurance Program.  
 Appendix O Precision Approach Landing System Approach Criteria.  
 Local publications.

KFAM-209

Topic. Daily flight schedule knowledge.



Requirement. Utilize the information on a daily flight schedule to include:

- Schedule appropriate number of position qualified controllers.
- Schedule student controller OJT.
- Identify peak arrival/departure air traffic periods.
- Identify number of aircraft anticipated to fly during the period.
- Identify the types of aircraft that will be flying.

#### KFAM 210

Topic. Aircraft accident/incident reporting knowledge.

- Initial Response.
- Marking of tapes/transcribing.
- Security of tapes/release authorization.
- Controller position relief.
- Initiate Search and Rescue (SAR) response/updating for the on-scene commander.
- Coordinate with appropriate agencies/officials.
- Required reports.
- Supervision of effort.

#### 4. Radar Section

#### KRFC-230

Topic. Phraseology/communications.

#### Reference

FAA 7110.65

Ch2	Sec1	Wheels Down Check.
Ch2	Sec4	Radio and Interphone.
Ch4	Sec2	Clearance Relay.
Ch4	Sec7	Single Frequency Approaches (SFA).
Ch4	Sec8	Communications Release.
Ch5	Sec4	Terms.
Ch5	Sec6	Methods (Vectoring).
Ch5	Sec7	Application (Radar Approaches).
Ch5	Sec10	No-Gyro Approach.
Ch5	Sec10	Lost Communications.
Ch5	Sec10	Radar Contact Lost.
Ch5	Sec10	Landing Check.
Ch5	Sec10	Position Information.
Ch5	Sec10	Final Controller Changeover.
Ch5	Sec10	Communications Check.
Ch5	Sec10	Transmission Acknowledgment.
Ch5	Sec10	Missed Approach.
Ch5	Sec10	Low Approach and Touch-and-Go.
Ch5	Sec10	Tower Clearance.
Ch5	Sec10	Final Approach Abnormalities.
Ch5	Sec10	Military Single Frequency Approaches.
Ch5	Sec11	Surveillance Approach.

Ch5 Sec12 Precision Approach Radar.  
 Ch5 Sec13 Use of PAR for Approach Monitoring.  
 Local publications.

KRFC-231

Topic. Clearance/coordination.

Reference

FAA 7110.65  
 Ch3 Sec1 Low Level Windshear Advisories.  
 Ch3 Sec10 Altitude Restricted Approach.  
 Ch4 Sec8 Circling Approach.  
 Ch4 Sec8 Missed Approach.  
 Ch4 Sec8 Low Approach and Touch-and-Go.  
 Local publications.

KRFC-232

Topic. Separation knowledge.

Reference

FAA 7110.65  
 Ch2 Sec1 Formation Flights.  
 Ch2 Sec1 Wake Turbulence.  
 Ch2 Sec1 Wake Turbulence Advisories.  
 Ch2 Sec1 Traffic Advisories.  
 Ch2 Sec1 Bird Activity Information.  
 Ch3 Sec1 Traffic Information.  
 Ch4 Sec5 Vertical Separation Minima.  
 Ch5 Sec3 ARTS/PIDP Identification Methods.  
 Ch5 Sec3 Questionable Identification.  
 Ch5 Sec4 Methods (Transfer of Radar ID).  
 Ch5 Sec4 Traffic (Radar Separation).  
 Ch5 Sec5 Application.  
 Ch5 Sec5 Target Separation.  
 Ch5 Sec5 Minima (Radar Separation).  
 Ch5 Sec5 Additional Separation for Formation Flights.  
 Ch5 Sec9 Approach Separation Responsibilities.  
 Ch7 Sec2 Visual Separation.  
 Local publications.

KRFC-233

Topic. Letters of Agreement and Facility Directives/Memos/Publications.

Reference

FAA 7220.1 Operational Position Standards.  
 FAA 7110.65 Air Traffic Control.  
 FAA 7210.3 Facility Operations.  
 FAA 7340.1 Contractions Manual.

FAR 91	General Operating.
AOM	Airfield Operations.
ATC FacMan	Facility Operations.
IFR Supplement.	
VFR Supplement.	
NOTAMS	General Notices.
AP1B	Military Training Routes.
LOCAL Sectional	
SECNAVINST 5216.5C	Memorandum of Understanding.
AIM	Airman's Information Manual.
NAVAIR 00-80T-114	
Ch3	Facility Management.
Appendix C	Sample format for FAA/USN Letter of Agreement Concerning Control of Air Traffic.
Appendix D	Memorandum of Agreement.
RATCF DAIR Operator's Manual.	
Low Altitude United States.	
High Altitude United States.	
Local publications.	

## 5. Tower Section

### KTGC-240

Topic. Phraseology/communications knowledge.

#### Reference

FAA 7110.65

Ch2	Sec4	Radio and Interphone Communications.
Ch3	Sec2	Light Signals.

Local publications.

### KTGC-241

Topic. Clearance/coordination knowledge.

#### Reference

FAA 7110.65

Ch2	Sec5	Route and NAVAID Description.
Ch4	Sec2	Clearance Items.
Ch4	Sec2	Clearance Prefix.
Ch4	Sec2	Delivery Instructions.
Ch4	Sec2	Clearance Relay.
Ch4	Sec2	Route or Altitude Amendments.
Ch4	Sec2	Through Clearances.
Ch4	Sec2	ALTRV Clearance.
Ch4	Sec2	IFR-VFR and VFR-IFR Flights.
Ch4	Sec2	Clearance Items.
Ch4	Sec3	Departure Procedures.
Ch4	Sec4	Route Use.
Ch4	Sec4	Route Structure Transitions.
Ch4	Sec4	Class G Airspace.

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Ch4 Sec5 Flight Direction.  
Ch4 Sec5 Exceptions.  
Ch4 Sec5 Lowest Usable Flight Level.  
Local publications.

KTGC-242

Topic. Separation knowledge.

Reference

FAA 7110.65  
Ch3 Sec1 Provide Service.  
Ch3 Sec1 Preventive Control.  
Ch3 Sec1 Use of Active Runways.  
Ch3 Sec1 Coordination Local and Ground.  
Ch3 Sec1 Vehicles/Equipment/Personnel On Runway.  
Ch3 Sec1 Traffic Information.  
Ch3 Sec1 Position Determination.  
Ch3 Sec1 Low Level Windshear Advisories.  
Ch3 Sec1 Observed Abnormalities.  
Ch3 Sec1 Visually Scanning Runways.  
Ch3 Sec3 Landing Area Condition.  
Ch3 Sec3 Closed/Unsafe Runway Information.  
Ch3 Sec3 Timely Information.  
Ch3 Sec3 Braking Action.  
Ch3 Sec3 Braking Action Advisories.  
Ch3 Sec3 Arresting System Operation.  
Ch3 Sec7 Ground Traffic Movement.  
Ch3 Sec7 Taxi/Ground Movement Operations.  
Ch3 Sec7 Ground Operations.  
Ch3 Sec7 Runway Proximity.  
Ch3 Sec7 Precision Approach Critical Area.  
Ch3 Sec11 Taxi/Ground Movement Operation.  
Local publications.

KTGC-243

Topic. Letters of Agreements and Facility Directives/Memos/Publications.

Reference

FAA 7220.1 Operational Position Standards.  
FAA 7110.65 Air Traffic Control.  
FAA 7210.3 Facility Operations.  
FAA 7340.1 Contractions Manual.  
FAR 91 General Operating.  
AIM Airman's Information Manual.  
AOM Airfield Operations.  
ATC FacMan Facility Operations.  
IFR Supplement.  
VFR Supplement.  
NOTAMS General Notices.  
AP1B Military Training Routes.

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Local Sectional

SECNAVINST 5216.5C Memorandum of Understanding.

NAVAIR 00-80T-114

Ch3 Facility Management.

Appendix C Sample Format for FAA/USN Letter of Agreement  
Concerning Control of Air Traffic.

Appendix D Memorandum of Agreement.

Low Altitude United States.

High Altitude United States.